

CPSC 203

Week 4 Lab 1 Databases

Spreadsheet

- Functionalities
 - Store data
 - Analyze data
 - Visual representation (i.e., charts)
 - Producing summary
 -
- In summary
 - Deals with data

Database

- As the name suggests, also deals with data.
- A more organized collection of information.
- Consider a contact book:

Name	Business Name	Address	City	Province
John Smith	ABC Inc.	1234 Brentwood Rd	Calgary	AB
Adam White	DEF Inc.	25 Elm St.	Calgary	AB
Cameron	EFG Inc.	2345 Macy's Ave	Edmonton	AB
Mark Fox	ABC Inc.	1234 Brentwood Rd	Calgary	AB
Abraham	MNO Inc.	233 Dalhousie Dr.	Winnipeg	MB

Database

- Two important functionalities:
 - Stores information in an organized way.
 - Enables retrieving information in an efficient way.
- Component of a database
 - Table (stores information).
 - Basic building block of a database.
 - Query (Retrieves information).

Database

- Relational Database
 - Tables and relationships among the tables
 - Tables: Collection of *records*
 - Records: Collection of related fields.
 - Field: Represents a piece of data.

Table

-

Name	Business	Address	City	Province
John Smith	ABC Inc.	1234 Brentwood Rd	Calgary	AB
Adam White	DEF Inc.	25 Elm St.	Calgary	AB
Cameron	EFG Inc.	2345 Macy's Ave	Edmonton	AB
Mark Fox	ABC Inc.	1234 Brentwood Rd	Calgary	AB
Abraham	MNO Inc.	233 Dalhousie Dr.	Wiinnipeg	MB

Records

- Record/Row:
 - <John Smith, ABC Inc. 1234 Brentwood Rd, Calgary, AB>
 - Each record made up of the following fields:
 - <Name, BusinessName, Address, City, Province>
- Field:
 - Province: AB
 - Business name: ABC Inc.

Primary Key

- Field/key that can distinguish records/rows on a table.

<u>PersonID</u>	<u>Firstname</u>	<u>Lastname</u>	email	birthday
101	Rick	<u>Edwards</u>	rick.edwards@email.com	7-Mar-68
102	Jimmy	Foster	jimmy.foster@email.com	28-Feb-87
103	Nathan	<u>Garcia</u>	nathan.garcia@email.com	2-Jun-82
104	Louise	Knight	louise.knight@email.com	12-Dec-67
105	Gary	<u>Knox</u>	gary.knox@email.com	1-Dec-92
106	Rafael	Lorenz	rafael.lorenz@email.com	9-Jul-78
107	Veronica	Page	veronica.page@email.com	9-Sep-45
108	Hector	<u>Sanchez</u>	hector.sanchez@email.com	1-Apr-00
109	Billy	Smith	billy.smith@email.com	30-Aug-99
110	<u>Ricardo</u>	<u>Stuckey</u>	ricardo.stuckey@email.com	17-Nov-55
111	Ken	Weaver	ken.weaver@email.com	13-May-45
112	<u>Lorenzo</u>	West	lorenzo.west@email.com	1-Jun-84

Relationship

- A database consists of multiple tables.
- Tables should be connected.
 - Through relationship.

Relationship

- Consider the table

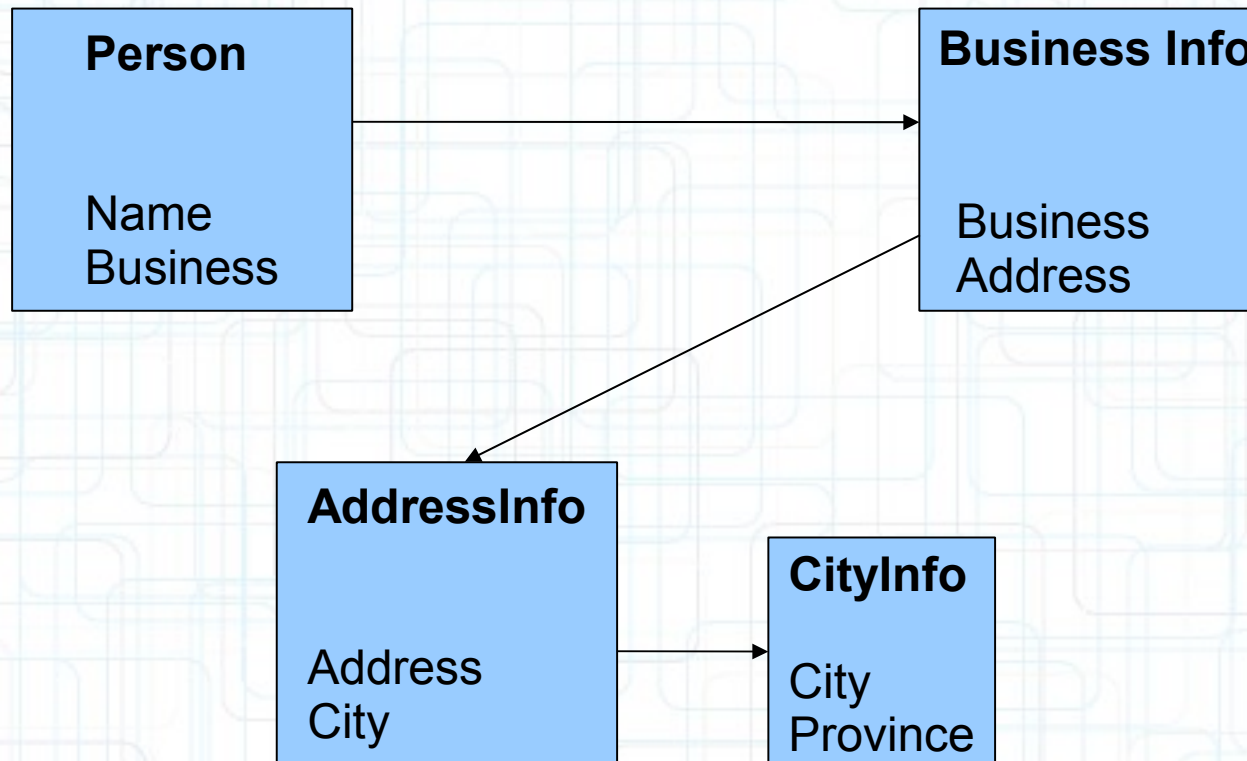
Name	Business Name	Address	City	Province
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Relationship

- Divide into three tables
 - Table 1: Person <Name,BusinessName>
 - Table 2: Business Info<BusinessName, Address, City, Province>
 - Can be further divided
 - Table 3: Business Info <BusinessName, Address>
 - Table 4: AddressInfo <Address, City>
 - Table 4: City Info <City, Province>

Relationship

- Spillted Design



Benefit(s)

- Person A switched job (Moved from Business B to Business C)

Recap

- Basic concepts of database
 - Tables
 - Primary key
 - Relationships